Carbaryl Monitoring Report

Environmental Monitoring and Pest Management Branch
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Environmental Monitoring of Carbaryl and Imidacloprid in Glassy-Winged Sharpshooter Treatment Area in Brentwood

This provides brief summary of monitoring results of carbaryl and imidacloprid in various environmental samples collected by the Department of Pesticide Regulation (DPR). Detailed reports will be provided once treatment is completed.

The County Departments of Agriculture, under the guidance of the California Department of Food and Agriculture have been treating glassy-winged sharpshooter infested properties with carbaryl and imidacloprid in Brentwood, Contra Costa County, Calif. DPR monitors selected treatment in urban residential areas (see map) for carbaryl (7 Insecticide®) and imidacloprid (Merit®) residues. Samples were taken for spray mixture in tank, air, foliage, and surface water.

Spray Tank Samples
Samples were collected from the hose-end of a spray tank

Concentration of carbaryl in tank samples

Location	Date Sampled	Concentration %
Brentwood (carbaryl)	10/23/00	0.123
Brentwood (imidacloprid)	10/25/00	0.249

Calculated theoretical tank concentrations at label rates from 1 to 4 teaspoons per gallon of water are 0.05 to 0.21 percent, respectively for carbaryl. Theoretical tank concentration for imidacloprid soil drench of 51.2 oz. per 100 gallons of water is 0.3 percent.

Surface Water Samples
All water samples were collected following completion of treatment. Sample taken on 10/23/00 was from sprinkler runoff into street drain and samples on 10/25/00 were collected during the first rain event following application.

Concentration of carbaryl in surface water samples

Location /Chemical	Date Sampled	Conc. (ppb)
Drain at Balfour Rd. and Waldon St. (imidacloprid)	10/23/00	78.8
Drain at Boltzen St. and Goerke St. (imidacloprid)	10/25/00	21.1
Drain at Bartlett Ct. and Manzanillo Ct. (carbaryl)	10/25/00	1,737

LC_{50s} for *Daphnia magna* , a waterflea, are 85 ppm and 18.6 ppb for imidacloprid and carbaryl, respectively.

Taking leaf punch samples from a treated privet bush.

Leaf Samples

Forty one-inch diameter leaf punch samples were collected one hour after treatment at Boltzen St. Samples were analyzed for dislodgeable foliar residue.

Location	Date Sampled	(ug/cm^2)
carbaryl	10/23/00	1.54
imidacloprid	10/25/00	1.98

Iwata et al. (1979) reported carbaryl foliar residues for citrus ranging from 2.4 to 5.6 ug/cm^2 at time of harvest.

Air Samples

Samples taken at Boltzen St. at four time-intervals: approximately 12 hours before application, during application plus one hour, for 24 hours after application, another 24 hours.

All samples were collected using XAD-4 resin tube with personnel air sampler at 3 liters per minute.

Concentration of carbaryl and imidacloprid in air before, during and after application.

Location	Date Sampled	Before Application (ppt)	During Application (ppt)	Post Application 24 hours (ppt)	Post Application 48 hours (ppt)
carbaryl	10/23/00	ND	ND	12.72	15.34
imidacloprid	10/25/00	ND	ND	ND	ND

ND= none detected

The preliminary health screening level for acute exposure to carbaryl is 3,053 parts per trillion (ppt).

This project is funded by the California Department of Food and Agriculture, glassy-winged sharpshooter project special appropriation. For a detailed study protocol and other updates, visit http://www.cdpr.ca.gov/docs/gwss or contact Kean S. Goh at (916) 324-4072 or email at kgoh@cdpr.ca.gov.

Jwalters 12/12/00

Carbaryl and Imidacloprid Monitoring Sites in the Glassy-winged Sharpshooter Treatment Area, Brentwood, Contra Costa County, CA., 2000